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EDUCATION IN SOCIAL SCIENCE AND THE SELECTION OF STUDENTS FOR TRAINING AS PROFESSIONAL SOCIAL SCIENTISTS *

by Elbridge Sibley

In the title of this paper I have taken the liberty of paraphrasing and transposing two items in the topic for discussion—"Selection, Education, and Training of Professional Social Scientists"—because I want to argue that certain education should precede the selection of future professional social scientists.

"If we could only attract some really bright youngsters into graduate work in the social sciences, the next generation could really accomplish wonders in this field." So runs a familiar argument which I set out a few years ago to test. The results of this investigation [1] have been received with approbation in some quarters, have received some confirmation in studies by one or two other investigators, and are still undoubtedly viewed with skepticism by a number of people, including some teachers of graduate students in social sciences. The essence of the findings, whose validity I should like to assume for purposes of the argument in this paper, is that, as measured by the usual indices of general academic achievement, the *average* "quality" of students specializing in social sciences both in undergraduate and graduate schools is indeed inferior to that of those specializing in the "hard" sciences of physics, chemistry, and mathematics; but that in *absolute numbers* there are about as many first-rate intellects among social science students as among the former. It follows—and this is the point of departure for the present argument—that the shortcomings of students who take advanced degrees in social science must be blamed more on educational processes than on germ plasm.

In his indictment of current programs of training for professional social scientists, Philip Hauser has given a prominent place to "lax standards of admission to graduate schools," and enumerated several things which applicants for admission ought to know but usually do not.[2] An obvious way to correct this deficiency would be to impose stringent prerequisites for admission to graduate study. The rest of my remarks will be mainly concerned, directly or indirectly, with this matter of prerequisites, or the earlier education of those who are to undertake advanced training as professional social scientists. The question of selection will not be ignored, but if one accepts the premise that selection must be based on acquired traits rather than on innate characteristics alone, one will agree that the selective process must go on, deliberately or not, over a prolonged period of education. Moreover, if the importance of motivation is recognized along with intelligence and the fact that young people in the United States generally prefer to choose their own vocations, it will be conceded further that the quality of students who elect to become social scientists will be largely determined by the kind of education which they undergo before they finally choose their careers.

* This paper is an abridgement of one presented at the Ford Hall Dedication Program, "The Social Sciences – Mid Century," April 21, 1951, one of a series of conferences held as part of the University of Minnesota's centennial celebration. The Council was invited to participate in arranging these conferences and is grateful to the program committee for permission to publish this paper.

1 *The Recruitment, Selection, and Training of Social Scientists,* Social Science Research Council Bulletin 58, 1948.

2 In a paper, on professional training in graduate schools, which preceded the present paper in the Ford Hall Dedication Program.

In order to pursue this discussion we must agree on a definition of social science, inasmuch as the term is conventionally applied to a wide range of disciplines along a gradient from the extreme of rigorous quantified objectivity to that of unbridled intuition and unverifiable dogma. All the various activities from one of these extremes to the other are interesting and sometimes satisfying and necessary forms of human experience. But if we consider all of them indiscriminately as social science we shall not get far toward agreement on a desirable pattern of education and training for social scientists. For the sake of the argument, let us consider only the kinds of social science which involve the effort to formulate hypotheses that can be tested and verified by experiments or systematic observations; the effort to remove a gradually growing body of knowledge from the realm of speculation and subjective opinion to the realm of demonstrated facts and principles about which it is no longer necessary to argue; the effort to make predictions, at least about a few social phenomena, within approximately measurable limits of confidence.

It may be objected that this excludes the really important problems of our times: how to prevent wars, how to achieve marital happiness, how to clean up politics, and other problems we can ill afford to ignore; but we are here concerned with social science in a strict sense. Too often we behave like mediaeval alchemists who sought to transmute the elements before they had learned to do less spectacular things. Patience is needed if we are to learn to understand society and social behavior scientifically; we cannot hope to understand everything at once.

UNDERGRADUATE PREPARATION

Let us return to the proposition that the advanced training of professional social scientists is impaired by the inadequate preparation of students who enter the graduate schools. Dr. Hauser's prescription for the would-be graduate student includes preliminary training in mathematics, statistics, languages, elementary research methods, field training, and general orientation to the special discipline which is to be pursued.

A good case can be made for including each of these elements. Mathematical training is necessary if one is to measure anything, and without measurement, as someone once said, there can be no science. Statistical training is necessary in the social sciences because their data are the products of multiple factors many of which can neither be controlled nor directly observed. Knowledge of various languages is important for the social scientist because something which he will need may have been written in one of them; or it might be said with even more cogency that such knowledge is needed because it is almost universally required of candidates for the Ph.D. degree. Field training is necessary because no scientist or scholar can handle secondary materials with confidence and sophistication if he has never dealt with the primary materials from which they are derived. Finally, it is evident that anyone needs preliminary orientation in a discipline before he can be sure that he wants to study it intensively for several years.

This tentative list of requirements for admission to graduate study in social science is formidable. Few students bring with them to graduate school adequate preparation along all these lines. Could such preparation practically be made prerequisite for admission to graduate schools? This raises two corollary questions: How long would the preparation take? Can prospective graduate students of social science be identified early enough to have time for it?

A canvass of persons who had been social science graduate students in the 1930's and 1940's revealed that a little more than half of those doing graduate work in social sciences had majored as undergraduates in the same disciplines, and only about three-fourths had even majored in any social science discipline. These findings confirm the complaint that graduate school entrance requirements in the social sciences are far from rigid. By contrast, it was found in the same study that more than 99 percent of graduate students in mathematics, biology, chemistry, and physics had majored as undergraduates in one of these subjects or in a closely related discipline. Clearly, if graduate departments of social sciences could insist on the same degree of previous specific preparation of their entering students, their standards of graduate training could be improved.

There are two reasons why this solution is not easy to apply. The first is the need for general education and the difficulty of finding room for more courses in undergraduate curricula, which are already fantastically overcrowded. Premedical students as well as undergraduates preparing for graduate study in natural sciences can attest that the prerequisites which they must—or think that they must—fulfill leave little spare time for "cultural" studies, or for learning about the social settings in which their specialized skills will have to be practiced. It is generally conceded that overspecialization in college is undesirable, and this is certainly true of students who are destined for professional careers as social scientists. This point need not be further labored here.

A serious obstacle to improving the present unsatisfactory state of professional social science training by imposing more specific prerequisites for graduate school entrance is the fact that many students decide to pursue graduate work in the social sciences after they reach

their senior year, when they no longer have time for the preparatory studies which they might have taken earlier if they had known they would need them.

Here we have a fine paradox indeed: how to prepare college students for studies which they have no present intention of undertaking? The problem would be more manageable if there were psychometric tests that would identify the freshmen who are destined several years later to become social scientists. I doubt that such tests now exist or are likely to be developed in the near future. In denying this I again suggest that a student's decision to become a social scientist is conditioned in large measure by the kind of education he undergoes in college. Hence, as a practical matter, perhaps we ought first to think of providing a general curriculum which will give all students a chance to learn something of the nature and potentialities of social science and at the same time equip them with some elementary skills and knowledge on which they can build if they later decide to devote themselves intensively to it. If this could be achieved, it should be feasible gradually to raise the standards of advanced undergraduate courses and the requirements for admission to graduate schools.

SOCIAL SCIENCE IN GENERAL EDUCATION

But is it unrealistic to expect to adapt the curriculum of hundreds of thousands of college students to anticipate the needs of a tiny minority who will eventually choose to become social scientists? First of all, some of them have already chosen other vocations before they enter college, and these will want to proceed without distraction to prepare themselves as fully as they can. In the second place, devotees of other disciplines would firmly oppose any scheme to seduce into the social sciences an unfair share of the students who come to college with open minds as to their vocational goals or their choices of fields of concentration.

The implications of the word "fair" merit further consideration. To pose the issue sharply, let me assert that social science does not receive a fair share of attention in the typical undergraduate curriculum today. This assertion may suggest a tabulation of numbers of courses offered by departments, or a more precise computation of student-credit-hours or something of the sort. Such a statistical exhibit would be irrelevant, for I am referring to the kind of social science defined in an earlier paragraph. By a fair share of attention, I mean a share commensurate with the importance of social science to a person who wants to be generally educated—who would like to be able to understand what scholars and scientists are talking about even though he is not a master of any one of their disciplines. The content of general education needs to change to keep pace with the development of knowledge, for there has been a serious lag in incorporating into it the essentials of social science.

Not many decades ago, rhetoric, mathematics, the Bible, and the classics formed the hard core of higher education. Natural philosophy, now called natural science, was a later accretion. Today, the social studies are by common consent an indispensable element in general education, but social science training in the more literal sense is often either absent or offered only as an elective. There is a fundamental difference between the widespread requirement that any candidate for the B.A. degree must expose himself to at least one laboratory course in a natural science, and the probably equally widespread requirement that he must also take some courses in history, government, economics or sociology. The difference lies in the fact that in the former field it is considered fundamentally important to learn *how* knowledge is created, while in the latter (I speak here of a norm and admit that there are deviations from it) it suffices to have memorized some facts and theories, and perhaps also to have discussed them in a setting where students are encouraged either to accept certain doctrines or to believe that one man's opinion is as good as another's when it concerns social problems. Conspicuously missing is experience in the hard process of trying to perform a controlled experiment or to discover objectively verifiable uniformities in some phenomenon which can be observed but not manipulated. Our college curricula are not yet designed to make the average student aware that any peculiarly scientific methods, however primitive they still are, can be applied to the investigation of social phenomena.

Yet educated people today need to know this, even though most of them may seldom use these methods themselves. They cannot learn it merely by being told that it is true, any more than one can properly appreciate the achievements—and equally important, the limitations—of natural scientists if he has never seen a simple experiment in a laboratory.

IMPROVEMENT OF STANDARDS

At this point I may be accused of shifting ground. Starting with the proposition that graduate students of social science ought to receive certain training as undergraduates, the argument has moved to the proposition that all college students ought to be trained in social science. This does not mean that every student ought to major in social science. It does mean that whatever social science training is required of students who have not yet chosen to concentrate in this field must be justi-

fied as having value for any generally educated person.

If this reasoning is sound, the task of improving social science training throughout the college years must begin with a fundamental revision of thinking about how to introduce the general student to social science in his early college years. The freshman year of college has traditionally been devoted largely to acquisition of mathematical, linguistic, and other skills which are the tools of scholarship. During the past generation, coincidentally with the rise of the social sciences, these disciplines have tended to be displaced by courses which jump lightly over the slow task of learning how to perceive, assemble, analyze, combine, and express ideas systematically and precisely. This tendency seems to have been abetted especially by teachers of social sciences. The student of chemistry still acquiesces in learning to handle laboratory glassware before he presumes to tackle some of the larger problems of biochemistry, and the student of physics does not expect to manipulate protons until long after he has mastered the manipulation of simple levers. By contrast, consider a typical first-year course in economics or sociology, or for even sharper contrast consider a general "social science" course in one of the numerous general education programs developed in recent years. Here problems of terrific complexity are either treated dogmatically or freely discussed as matters on which any intelligent person has an equal right to his opinions.

From these "introductory" courses, a student who decides to specialize in one of the social sciences typically moves on to courses in which a more limited range of subject matter is treated in greater detail. But he has not yet had any basic methodological training and practice comparable to that which forms the backbone of the first courses in natural sciences. However, having become somewhat sophisticated in verbalizing about the subject, he is impatient with the idea of suspending further discussion of large matters and spending some time learning how to use the tools of genuinely scientific inquiry.

There is an ironic but real danger that the improvement of standards of social science work in undergraduate colleges may be impeded by the eagerness of some exponents of general education to popularize social studies. The historical basis of this danger is quite apparent. As latecomers on the academic scene, social science departments have more or less consciously tried to proselyte larger numbers of students by sugar-coating their medicines. A glance at enrollment figures suffices to show that this is no longer necessary. On the contrary, everyone knows serious students who have been discouraged from going on in the field by the very softness of introductory social science courses.

As long as this situation persists, it can be expected that the graduate departments of social science will continue to fall short of what they might well hope to achieve, both in terms of turning out well-trained social scientists and in terms of extending the frontiers of their still underdeveloped provinces of knowledge.

A comprehensively detailed plan for incorporating the fundamentals of social science into the general curriculum cannot be attempted here, but these include skill in dealing with quantitative data, and experience of the process of designing and conducting an experiment or a series of controlled observations.

As to the first essential—training in mathematical and statistical principles—it may immediately be objected that some social sciences make no direct use of statistical methods. To this there are two answers, each sufficient in itself: (1) the present discourse refers to the kind of social science which involves the effort to establish generalizations on the basis of experimental or systematic observational data; (2) it concerns things with which any generally educated person ought to have a modest degree of familiarity even though not a specialist in them.

A decade and a half ago the Social Science Research Council, undertaking to select two dozen outstandingly promising candidates for fellowships offered to college seniors to enable them to enter graduate schools, administered to the candidates College Entrance Examination Board tests in verbal and mathematical aptitude. Thirteen of the candidates had taken the same tests four years earlier, before entering college. On the verbal test every individual's score showed considerable improvement over his previous performance. But on the mathematical test only four of the candidates showed gains, while nine of them had lost proficiency during their college years.[3] The relevance of this bit of history to the present discussion is increased by the fact that each of these fellowship candidates had been nominated by his teachers as exceptionally qualified for advanced work in the social sciences.

The situation has probably improved somewhat during the intervening years, as concerns undergraduate majors in social science in some institutions; but I doubt that it has improved appreciably as far as students in general are concerned. Most of us, looking back on what we studied, would readily concede that our early training in the fundamentals of quantitative scientific work was less than adequate. At least, more training of that nature would have been more useful to us than some of the traditional mathematics courses which we were required to take, and at best would have been even more valuable in the long run than some of the social science

[3] Carl C. Brigham, *Examining Fellowship Applicants* (Princeton: Princeton University Press, 1935), pp. 34–35.

courses in which we learned ready-made answers to the world's more immediate problems.

Surveying the present state of statistical training, S. S. Wilks has observed that

> Much of it is hurried *ad hoc* training given mechanically and without adequate foundation and too late . . . We have been and are still frantically devising all sorts of quick training courses to meet immediate needs of those who have gone through college without receiving any training in statistics.[4]

Paraphrase this statement to refer not merely to statistical training but also to the other prerequisites for advanced work in social sciences which Dr. Hauser mentioned, and it still rings true. Students majoring in the social sciences graduate from college uneducated in the foundations of any social science because, by the time they have decided to major in one of these disciplines, they lack time for somewhat slow and painful instruction in fundamental concepts and techniques of science.

THE PROBLEM OF SELECTION

The suggestion that students be required to select their major fields of concentration earlier in their college courses is unacceptable from the standpoint of the social sciences under prevailing conditions, because they have little opportunity until the later college years to see for themselves what social science might be like.

This brings us back to the selection of students for advanced training in social science. Intensive exploration of the processes which lead students to choose one or another vocation or field of specialization would take a long time, but it seems clear that no one can intelligently choose something which he has had no opportunity to experience or begin to understand. Yet typical college curricula, including both those which have and those which have not recently been revised in the name of general education, afford freshmen and sophomores little if any opportunity to discover what the more rigorous kinds of social science are like.

[4] S. S. Wilks, "Undergraduate Statistical Education," *Journal of the American Statistical Association,* March 1951, p. 17.

It might be fruitful to experiment with a sequence of courses in social sciences which would begin at the beginning, as do those in other "hard" sciences.

Social science teachers might join with mathematicians to help free the average student from his tendency to shrink from any challenge to think about social data in quantitative terms by giving him some understanding of the fundamental concepts of probability.

Social science teachers might also insist that any generally educated college graduate in this mid-century ought to have had at least some firsthand experience in rudimentary operations of research in social science.

The two latter innovations, if incorporated into the general requirements for all students, would not only lay a foundation for sounder training of students who decide to specialize in the social sciences, but would also enable students to decide more intelligently whether they wish to do so. Apart from this, they should equip college graduates in general to think and act more intelligently about the social environment from which none of us can escape.

It has long been generally accepted that a well-educated citizen needs to know something about the fundamental nature of natural science in order to live intelligently in a world which has been remade by the works of natural scientists. Recognizing this need, colleges require their students, even those who are not aiming toward scientific vocations, to gain some firsthand experience in a natural science. In preparation for this experience the students must have had a modicum of appropriate training in mathematics.

The analogous need for general understanding of the nature of social science is clear, and it is high time that it be met. By making provisions to meet it, colleges can at the same time contribute, through more adequate undergraduate education in social science, to raising the standards of training for professional social scientists and thus to the advancement of social science itself.

SYSTEMATIC RESEARCH IN POLITICAL BEHAVIOR: A PRELIMINARY REPORT

by Avery Leiserson

An interuniversity seminar on political behavior research was held at the University of Chicago during the summer of 1951 under the program initiated by the Council in 1950 with funds provided by the John and Mary R. Markle Foundation, and under the auspices of the Council's Committee on Political Behavior. The seminar was originally planned to include from eight to ten members, and in spite of attritional factors the final working group was composed of six political scientists, one sociologist, and a rapporteur. Professors J. Barents of the University of Amsterdam and J. Westerstahl of the University of Stockholm, visiting this coun-

try to study the present state of teaching and research in political science, attended briefly as guests.

PERSPECTIVE

The seminar was characterized by explicit concern with three problems: (1) the relation between theory and research in contemporary political science; (2) the usefulness of "group process" or "group interaction" concepts in social psychology, economics, and political science as models for analysis of the political process; (3) the possibilities of planning research in a context in which the objective was not so much to find solutions to urgent problems as (a) to state the assumptions of the research proposal, and (b) to formulate the conditions under which the derivative hypotheses, if important, would become susceptible to research. The seriousness with which the seminar viewed its role is reflected in its decision to prepare a report embodying the group's collective efforts to deal with these problems. The following paragraphs are only preliminary comments.

The plans for the seminar were based upon the assumption that it would be a working group, not a general symposium or discussion forum. This principle indicated the advisability of inviting as members persons who were in the process of planning or completing research rather than those who were primarily interested in clarifying or establishing priorities among the desirable goals of citizenship, democracy, the free world, etc. Without deprecating the importance of such intellectual efforts, the seminar members who finally came together tended to take the view that systematic explanation, rather than reform, is the immediate objective of inquiry into the patterns of interpersonal and intergroup behavior connecting society and economy with the structure and processes of government. Most of the group, further, were inclined to believe that action-oriented research tends to block rather than to facilitate inquiry into important theoretical questions. Finally, it was their opinion that political theory has somehow become separated from significant research into governmental and political behavior, to the detriment of both the political science profession and the quality of contemporary political investigation and discussion.

Sharing these views, the members of the seminar, once organized, agreed relatively quickly upon a functional view of theory as the clarification of assumptions, the formulation of hypothetical propositions about uniformities in political behavior, and the systematic specification of the conditions under which such uniformities would have some probability of recurrence.

The substantive problem to which the seminar chose to apply its formal conception of theory was the so-called group interaction hypothesis, which in broad terms explains the political behavior of men in terms of their group affiliations, attitudes, and responsibilities. Both monographs and textbooks in the fields of political parties, public opinion, the legislative process, and public administration during the last 25 years have increasingly utilized such behavioral or process concepts as factions, pressure groups, and organized interests. Voting behavior and participation have been analyzed in terms of social class, income, religion, age, sex, and ethnic groups. Studies of political attitudes, symbols, and effects of propaganda campaigns have developed the explanatory concept of an interactive process between organized groups functioning in a competitive context of winning support from a public or audience of individuals, who in turn are characterized by multiple memberships in several groups. The legislative process has come to be conceived as a complex multi-dimensional series of interactions: Among these are executive-legislative relations, public information and attitudes, conflicts and disagreements within and between interest groups and administrative agencies, cross-pressures from local constituency and national party organizations upon legislators, and the hierarchical structure and symbolic relationships within the legislature itself. The composition and behavior of both political party and administrative bureaucracies have been analyzed in terms of the group backgrounds and affiliations of their personnel, the internal struggle for power and control, the relationships of hostility or collaboration with external group interests, etc.

Partly to review and partly to appraise developments toward a dynamic analysis of the political process, the seminar proposed to consider the feasibility and utility —in political and social science research—of systematic formulation of the "group" concept in analyzing political behavior. This objective turned out to be the least absorbing or provocative of the seminar's energies. The fact that a volume with precisely this purpose, David Truman's *The Governmental Process,* was published less than a month before the opening of the seminar undoubtedly contributed to this result. It may be of interest to the planners of future seminars, however, that this particular group found mere definitional clarification of insufficient interest to hold its attention beyond two or three sessions. The seminar derived considerable benefit from Truman's discussion of the ideas and implications of categoric, interaction, and reference or identification groups, but when it came to determining its own work program, it quickly passed to the third item on the agenda, the possibilities of planning research on political behavior.

A research planning conference can be extraordinarily

trivial and futile, or it can be a rich and stimulating experience. Aside from the orientation of the participants, some of the contributing factors are their ability to formulate the agenda, their judgment of significance and opportunity, the level of their standards of competence, and the degree to which personal relations within the group encourage the members to subject themselves frankly and constructively to intensive intellectual criticism. The orientation and composition of most political science departments favor individual initiative rather than group consultation in planning research proposals. Many political scientists altogether lack the experience of intra- or interdisciplinary collaboration, with the result that when they are invited to such a session they tend to feel like fish out of water, or to become excessively negativistic or argumentative, or to suggest grandiose projects without regard to technical problems of design, collection, and analysis of data. Granted that important research problems should be chosen, and that the standard of selection should be more precise than to permit suggesting merely fascinating ideas or the need for more data on undefined problems, it is of the greatest importance that political scientists maintain research standards appropriate to their professional aspirations. The Chicago seminar may not be a model for future collaborative efforts, but it will long be remembered by those fortunate enough to participate as an example of what they would like to have done years before and may yet be able to develop in their own seminars with graduate students.

PREPARATION AND CONDUCT OF THE SEMINAR

Certain understandings as to focus and procedure were reached through correspondence prior to the sessions. First, the chairman called attention to the concern of the Committee on Political Behavior with the role of theory in improving methodology, and the application of other social science techniques in political research. Oliver Garceau of Bennington College had previously been commissioned by the committee to make a survey of contemporary research in political behavior, and as a sort of screening operation, his report was circulated to prospective participants for comment and suggestion prior to its publication.[1] Second, it was agreed that the summer seminar should be used as an opportunity for personal research and writing by the participants, each of whom would submit for discussion a paper prepared *in advance* of the first meeting, and would write this paper in the context of a behavioral analysis of the political process.

With these understandings in mind, each participant presented to the seminar a paper on a problem related to his own research interests. The papers were circulated in advance of the sessions at which they were discussed. Most of the sessions during the first two weeks were spent in discussion of these papers:

David B. Truman (Columbia University): "The Group Concept in Related Social Sciences: Some Preliminary Observations"

Dayton D. McKean (Dartmouth College): "Formal Governmental Structure and the Political Process"

Avery Leiserson (University of Chicago): "Representation and Responsibility in American Public Life"

Samuel J. Eldersveld (University of Michigan): "Conditions and Patterns of Political Communication"

Samuel P. Huntington (Harvard University): "Groups, Agencies, and Clientalism"

Morris Janowitz (University of Chicago): "Institutional Aspects of American Political Parties"

Alexander Heard (University of North Carolina): "Proposals to Improve the Collection of Political Statistics."

Ralph M. Goldman served as rapporteur.

By the end of the first week the seminar had shifted its orientation from that of assisting and promoting the discrete efforts of individual workers to a conception of itself as a research planning group. As a direct outgrowth of the discussion of the papers, a series of promising research problems were identified. The seminar collectively assigned to each member the task of developing a research plan appropriate to his assigned project, with the responsibility of reporting his proposal back to the seminar for criticisms and suggestions, and the prospect of incorporating the revised drafts in the seminar's final report. This contemplated joint report was conceived as having three purposes: (1) to exemplify the problems of research planning and design in behavioral terms; (2) to communicate the seminar's preconceptions and standards for political behavior research to political scientists; (3) to furnish, by means of a critical bibliography, a methodological guide for training purposes in the members' own classes.

The research plans followed a common pattern. Each member undertook to delineate for his project: (a) the underlying policy problem and its importance; (b) the basic postulates and assumptions underlying the research proposal, and the relevance of this orientation to present understanding of political behavior; (c) the leading propositions; (d) the empirical data required for testing the propositions; and (e) the research and policy implications of the hypothesized findings. In preparing these

[1] Oliver Garceau, "Research in the Political Process," *American Political Science Review*, March 1951, pp. 69–85.

plans the object was to apply systematic research concepts to several of the traditional areas of political science, and to permit the members of the seminar to subject their own work plans to the most vigorous kind of criticism, within the limits of agreed standards for behavioral research.

Considerable pressure upon the seminar members developed as they sought to reorient their research in somewhat more systematic terms. The pattern of daily morning sessions was interrupted during the third week, but the mornings of the following weeks were again fully occupied with criticism and discussion of project proposals, editing a draft statement for the final report, and considering the requirements of an adequate critical bibliography. Several of the research plans reached the second-draft stage, subsequent to group criticism, and at the conclusion of the seminar each member agreed to submit his final draft plan to the editor of the report by October 1.

RESULTS

The consensus of the seminar was that systematic research is both meaningful and feasible in terms of "middle-level" generalizations about political behavior. The members reported a curiosity and degree of expectation, among present and potential political scientists, as to the prospects for systematic political research that augurs well for programs of training in empirical investigation in addition to the time-honored techniques of philosophical, historical, and legal analysis. The task of preparing a final report of the seminar was deliberately undertaken with the notion of meeting a demand, not only from the participants' own students, but among their fellow political scientists. The agreement reached within the seminar as to the nature of theory construction and the relationship of theory to research operations contributed to the development of a group morale that will probably be maintained far beyond the possibility of future meetings.

While the members were surprised by the degree of applicability of socio-psychological terms to the political process, the seminar did not make much progress in identifying the elements or variables involved in behavioral analysis beyond the definitional stage. There was considerable recognition and discussion of multiple group membership, reference group theory, status and role systems, and the concept of a dynamic equilibrium in appraising the stability of intra- and intergroup relations. The prevailing opinion inclined to the view that the seminar is an inappropriate place to devote much time to building a formal theoretical system for describing the total governmental process. As already mentioned, an alternative agenda was adopted that took the form of applying deductive-hypothetical methods to the design of research in recognized categories of political behavior, e.g., the effects of structural changes in local government upon political attitudes, the effects of changes in interest group and administrative agency relations upon the political viability of the public agency, group patterns of political involvement and participation, national versus local influences upon congressional party leadership, and national trends in electoral party organization and management.

MATHEMATICAL MODELS FOR BEHAVIOR THEORY: A BRIEF REPORT ON AN INTERUNIVERSITY SUMMER RESEARCH SEMINAR

by Frederick Mosteller

A SUMMER seminar on mathematical models for behavior theory was held at Tufts College, June 28 – August 24, 1951. The senior members were: Cletus J. Burke, Indiana University; Robert R. Bush, for the past two years a natural science – social science fellow under the joint program formerly sponsored by the National Research Council and the Social Science Research Council, now at Harvard University; William K. Estes, Indiana University; George A. Miller, formerly at Harvard University, now at Massachusetts Institute of Technology; Frederick Mosteller, Harvard University (chairman); David Zeaman, University of Connecticut. William McGill, formerly at Boston College, now at Massachusetts Institute of Technology, and Katherine Safford, Harvard University, served as assistants; and Jane Beggs, Mount Holyoke College, as secretary.

The program for the seminar was organized to provide for carrying on research individually and in small groups as well as for oral reports to the entire group. Specifically, Monday, Wednesday, and Friday afternoons were set aside for reports and discussion. Whenever anyone's research reached a stage where he wished criticisms and suggestions, or to inform other members of his results, he presented his material on the next

available date. Since this was a working seminar the agenda was seldom crowded, although most of the participants gave three or more reports. To assist in disseminating information about progress, working papers were written, reproduced, and distributed promptly. These presented results in a somewhat more permanent form that could be studied at leisure and speeded up the presentation during discussion periods. Twenty-three such working papers, averaging more than 13 pages in length, were written.

A rather inadequate summary of the specific results of the individual research is attempted below:

Cletus J. Burke used a differential equation approach to develop a theory to be applied to discrimination experiments. It is hoped that this theory will be adequate to describe important aspects of operant conditioning, including response latencies. Later papers are planned dealing with more complicated discrimination problems.

Robert R. Bush and Frederick Mosteller worked on aspects of learning theory that might be described by linear operators. They completed a first draft of eight chapters comprising the theoretical section of a monograph on the subject. Much of their time was spent in attacking some underlying mathematical problems common to several of the theories employed by members of the seminar.

William K. Estes has been working from a set-theoretic model attempting to translate contiguity theory into more mathematical terms. Among his contributions are treatments of spontaneous recovery and related phenomena, habituatory decrement and classical conditioning, and a study of reinforcement in terms of contiguity assumptions.

George A. Miller with the assistance of William J. McGill developed a statistical theory for simple verbal learning experiments. Their paper "A Statistical Description of Verbal Learning," which analyzes the results of a number of verbal learning experiments, will soon be submitted to an appropriate journal for publication.

David Zeaman developed a model for describing alternation phenomena. This model synthesized the main aspects of the curiosity drive and retroactive inhibition theories for explaining alternation phenomena.

Katherine Safford prepared a bibliography of previously published work on mathematical models in behavior theory.

In the judgment of the members the seminar was extremely successful, for several reasons. First, the personnel was already interested in the main problem of the seminar and had a large backlog of problems waiting to be worked on. Little time was lost at the beginning of the session in ironing out communication problems or in debating value judgments. Second, most of the time was spent in actual research, the discussion sessions serving to contribute to its progress. Third, it was found very early that most of the participants were attacking their main problems from points of view which had a common mathematical basis—thus results of one member could usually be translated into the language of another—and the translation itself was valuable since it provided another way of thinking about the same problem. Fourth, freedom from other responsibilities and interruptions through the geographic isolation of the seminar, along with the excellent facilities provided by Tufts College, made continuous intensive research possible. Fifth, the contributions of the assistants and secretary in carrying out computations, assisting with the development of the theory, and keeping the working papers up to date cannot be overestimated.

COMMITTEE BRIEFS

IDENTIFICATION OF TALENT

David C. McClelland (chairman), Alfred L. Baldwin, Urie Bronfenbrenner, Fred L. Strodtbeck.

Since its appointment in March the committee has been developing proposals for research on cultural and personal determinants of talent. In June the John and Mary R. Markle Foundation granted $100,000 to the Council for research in this field. With support from this fund, the following projects have been initiated:

Analysis, under Urie Bronfenbrenner's direction, of social sensitivity as a method for identifying social talent: the purpose is to develop a method of measuring a person's ability to judge what another is thinking and feeling, primarily by using role-playing situations.

Research, under Fred L. Strodtbeck's direction, on the role of value orientations in the development of talent: the purpose is to develop an instrument for measuring value orientations which could be used to predict behavior in decision situations involving outcomes judged successful or unsuccessful.

Research, under David C. McClelland's direction, on the role of motivation in the development of talent: the problem is the use of a technique already developed for measuring the needs for "achievement" and "affiliation," as part of the two preceding projects.

The three projects may ultimately converge in an attempt to predict successful patterns of behavior in small-group situations from knowledge of motivation, values, and social sensitivity.

PACIFIC COAST COMMITTEE ON COMMUNITY STUDIES

Leonard Broom (chairman), Egerton L. Ballachey, William S. Robinson, Calvin F. Schmid, Eshref Shevky, Robert C. Tryon.

The committee is engaged in preparation of a research memorandum on community study. At a four-day meeting in Pacific Grove, June 14–18, manuscript materials prepared to date were reviewed and edited, and a final organization of the memorandum agreed upon. It will contain contributions by each member of the committee. Other matters discussed at the June meeting included a presentation by Mr. Ballachey of a field research project involving a psychological-psychiatric survey, and the preparation of plans for intercity and intermethod comparisons in which the several techniques of Messrs. Schmid, Tryon, and Shevky will be applied in Seattle, the Bay Area, and Los Angeles.

H. E. J.

PACIFIC COAST COMMITTEE ON SOCIAL STATISTICS

Maurice I. Gershenson (chairman), Genevieve Carter, Emily Huntington, George M. Kuznets, Davis McEntire, Calvin F. Schmid, Jacob Yerushalmy.

Continuing a series of annual conferences, each dealing with a specific aspect of social statistics, the committee sponsored a two-day meeting on morbidity statistics, held in Berkeley on June 11–12. Total attendance at the conference was approximately 45, including faculty members from social science departments in Pacific Coast universities and representatives of city, county, state, and federal health services. Under the chairmanship of Jacob Yerushalmy, reports were given and discussions conducted on the present and potential uses of morbidity statistics; limitations in current data and suggested means of improving them; morbidity surveys for specific diseases; and methods of obtaining morbidity statistics for the general population with special emphasis on sample surveys. Discussion leaders included E. Richard Weinerman of the Permanente Health Plan, Marcus Gunn of the California Western States Life Insurance Company, Harold D. Chope of the San Mateo County Health Department, Robert Dyar, Lester Breslow, and Arthur Weissman of the California Department of Public Health, and Mary Burke, Robert Lewis, and Theodore D. Woolsey of the U. S. Public Health Service. Karl F. Meyer, Professor of Experimental Pathology and Director of the Hooper Foundation, University of California, addressed the luncheon meeting on June 12. H. E. J.

SOUTHERN ASIA

(Joint with the American Council of Learned Societies)

W. Norman Brown (chairman), Kingsley Davis, Franklin Edgerton, Holden Furber, David G. Mandelbaum, Horace I. Poleman, Lauriston Sharp; *secretary,* Alice Thorner.

The committee's report, *Southern Asia Studies in the United States: A Survey and Plan,* was published in August and has been widely distributed to government and university personnel interested in Southern Asia. This report appraises the various resources available in the United States in terms of the national need for understanding of the area which includes India, Pakistan, Afghanistan, Ceylon, Nepal, Burma, Thailand, Indo-China, Malaya, Indonesia, and the Philippines. Judging these resources inadequate, although far from inconsiderable, the committee recommends a planned ten-year expansion based on present facilities. For each of its seven major recommendations the committee provides an estimated budget of annual or nonrecurring subsidies which would be required to set that part of the plan in motion. The entire program, however, is presented as an integrated whole aimed at creating a firm basis for Southern Asia studies in this country rather than as a series of separate proposals for advancing one or another aspect of the field.

In its survey the committee notes that there are in the United States only about 160 individuals with significant competence in dealing with the languages, ideas, history, and current conditions of the peoples of Southern Asia. Five universities have special programs of study on the area; six additional universities offer a number of relevant courses; otherwise, instruction is rare and scattered. Even with the help of Fulbright scholarships, only two dozen or so American research workers each year have been able to undertake field investigations on humanistic or social science topics. Publication of research results is slow, difficult, and expensive. American museums and libraries house important Southern Asia collections. These are neither fully utilized nor commensurate as a whole with the size, wealth, and world interests of the United States.

The ten-year plan proposes to provide both a reasonable increase in the number of trained personnel and the amount of reliable information on Southern Asia in the short run, and to lay the foundations for a permanent program of training and research. The plan aims to produce within ten years a minimum of 750 new Southern Asia specialists for employment in universities and colleges, research offices, government agencies, armed services, business, press and other media, and various additional public and private organizations. These specialists can be trained most efficiently in well-staffed and equipped centers of research and instruction. The committee recommends that a small number of such centers should be developed and maintained on a permanent basis, particularly in the five universities which have already initiated Southern Asia area programs: California, Columbia, Cornell, Pennsylvania, Yale.

The report urges the establishment of an American Institute in Delhi, with branches to be set up subsequently in other important cities of the area, in order to facilitate field work and scholarly relations. It proposes a novel monograph-purchase program to encourage the publication of sound works on Southern Asia. The committee also calls for the promotion of Southern Asia studies as a normal subject in general education, the expansion and greater use

of library and museum collections, and the maintenance of continuous liaison on all of these matters between the universities and the U. S. government. A. T.

WORLD AREA RESEARCH

Robert B. Hall (chairman), Ralph L. Beals, Wendell C. Bennett, W. Norman Brown, Melville J. Herskovits, Donald C. McKay, Philip E. Mosely, Lauriston Sharp, George E. Taylor; *staff*, Bryce Wood.

A current picture of university resources for area study is presented in *Area Studies in American Universities*, by Wendell C. Bennett. This report, prepared in the spring of 1951 with the assistance of the committee, is based upon a survey which included a review of statements in university catalogues, interviews and correspondence with area specialists in each university covered, and a detailed census of the faculty and graduate students engaged in area work last spring. The census was essentially limited to the 19 universities known to have organized area research and training programs at the graduate level, although efforts were made to take account of offerings at other major universities as well. The survey and Mr. Bennett's report were designed particularly to provide data for the formulation of a sound national policy to meet the government's needs for area-trained personnel for numerous large-scale international programs. The committee has been actively concerned that ways be found of meeting these governmental problems without disrupting the highly important function of training research scholars.

The report states that offerings and organization for all major areas require strengthening but that particular problems exist with respect to knowledge and personnel relating to Southeast and South Asia, the Near East, and Africa. For example only three integrated area programs are in operation with respect to all of Southeast and South Asia, only 35 faculty specialists are engaged in these programs, and only 60 graduate students are being trained. Facilities for study of the contemporary Near East are almost entirely absent although efforts to remedy this are being made at two universities. African studies are offered at only one university with a small staff and a limited number of graduate students. In appraising the total situation, Mr. Bennett pointed out that "the universities have the responsibility of increasing scientific knowledge regarding every part of the world" and that "ultimately, facilities should be available for the proper training of research scholars for every area." Particular emphasis is placed on provision for fellowships, the financing of field work, rotation of area scholars between universities and government agencies, and expansion of research materials. The conclusion was reached that the specific requirements of the federal government can be met only if it is prepared to furnish adequate financial support, while other sources of support must be sought for the task of building and maintaining facilities to meet the academic and basic research needs which constitute the long-term responsibility of the universities.

PERSONNEL

RESEARCH TRAINING FELLOWSHIPS

Since making the appointments listed in the June issue of *Items*, the Committee on Social Science Personnel has awarded four new research training fellowships:

Richard A. Easterlin, Ph.D. candidate in economics, University of Pennsylvania, for analysis of current literature on pre-industrial nations.

William A. Kornhauser, Ph.D. candidate in sociology, University of Chicago, for research on unpopular political allegiances in a hostile environment.

Gladys Engel Lang, Ph.D. candidate in sociology, University of Chicago, for research on the adult feminine role.

Richard W. Rabinowitz, LL.B. and M.A. candidate in Foreign Area Studies, Yale University, for training in social science and research on the sociology of law.

AREA RESEARCH TRAINING FELLOWSHIP AND TRAVEL GRANT

Since making the appointments listed in the June issue of *Items*, the Committee on Area Research Training Fellowships has made the following awards:

Gilbert L. Geis, Fulbright scholar and Ph.D. candidate in sociology and Fellow in Scandinavian Area Studies, University of Wisconsin, a fellowship for study in Norway of public opinion about various aspects of American culture.

Merrill R. Goodall, Assistant Professor of Political Science, University of Colorado, and Fulbright research scholar at Delhi University, a travel grant for study in India of administrative requirements for economic planning.

DIRECTORS AND OFFICERS OF THE COUNCIL

At the annual meeting of the board of directors of the Council held in September, Robert B. Hall and Donald G. Marquis of the University of Michigan, Frederick Osborn of New York City, and Malcolm M. Willey of the University of Minnesota were re-elected directors-at-large for the two-year term 1952–53.

Roy F. Nichols of the University of Pennsylvania was elected chairman of the board of directors; Robert R. Sears of Harvard University, vice-chairman; Ralph L. Beals of the University of California at Los Angeles, secretary; and Dorothy S. Thomas of the University of Pennsylvania, treasurer.

APPOINTMENTS TO COUNCIL COMMITTEES

Fred Eggan of the University of Chicago has been named chairman of the Committee on Area Research Training Fellowships for 1951–52. The other members of the committee, also newly elected, are Cyril E. Black of Princeton University, W. Rex Crawford of the University of Pennsylvania, Cora Du Bois of the Institute of International Education, Richard Hartshorne of the University of Wisconsin, and Robert S. Smith of Duke University.

Edward P. Hutchinson of the University of Pennsylvania has been reappointed chairman of the Committee on Social Science Personnel, which has charge of the Council's research training fellowship program. Richard A. Lester of Princeton University has been newly appointed to the committee; and Donald T. Campbell, William W. Howells, Earl Latham, and Paul Webbink have been reappointed for the year 1951–52.

Philip Davidson, President of the University of Louisville, has been appointed a member of the Committee on Faculty Research Grants, succeeding Elmer Ellis (resigned).

Maurice I. Gershenson of the California State Department of Industrial Relations has been named chairman of the Pacific Coast Committee on Social Statistics for 1951–52, and Genevieve Carter of the Associated Agencies of Los Angeles has been added to the committee.

Henry Brosin of the University of Pittsburgh Medical School and F. C. Redlich of the Yale University Medical School have been appointed members of the Committee on Psychiatry and Social Science Research.

Abram Bergson of Columbia University, William B. Edgerton of Pennsylvania State College, Waldemar Gurian of the University of Notre Dame, and George Kennan of the Institute for Advanced Study have been appointed to the joint Committee on Slavic Studies, by the American Council of Learned Societies and the Social Science Research Council. The continuing members of the committee are Merle Fainsod (chairman), Cyril E. Black (secretary), H. H. Fisher, Ernest J. Simmons, René Wellek, and Sergius Yakobson.

Melville J. Herskovits of Northwestern University, Philip E. Mosely of Columbia University, and Lauriston Sharp of Cornell University have been added to the Committee on World Area Research.

PUBLICATIONS

SSRC BULLETINS AND MONOGRAPHS

Social Behavior and Personality: Contributions of W. I. Thomas to Theory and Social Research, edited by Edmund H. Volkart. June 1951. 348 pp. Cloth, $3.00.

Support for Independent Scholarship and Research by Elbridge Sibley. Report of an inquiry jointly sponsored by the American Philosophical Society and the Social Science Research Council. May 1951. 131 pp. $1.25.

Area Research: Theory and Practice, Bulletin 63, by Julian H. Steward. August 1950. 183 pp. $1.50.

Tensions Affecting International Understanding: A Survey of Research, Bulletin 62, by Otto Klineberg. May 1950. 238 pp. Paper, $1.75; cloth, $2.25.

The Council's bulletins, monographs, and pamphlets are distributed from the New York office of the Council.

PAMPHLETS

Area Studies in American Universities by Wendell C. Bennett. 1951. 92 pp. $1.00.

Domestic Control of Atomic Energy, Pamphlet 8, by Robert A. Dahl and Ralph S. Brown, Jr. 1951. 122 pp. $1.00.

ANNOUNCEMENT

FELLOWSHIPS AND GRANTS

The next closing dates for receipt of applications for Council fellowships and grants will be as follows:

Research Training Fellowships: January 15, 1952, for awards to be made in April by the Committee on Social Science Personnel.

Area Research Training Fellowships and Travel Grants for Area Research: January 15, 1952, for awards to be made in April by the Committee on Area Research Training Fellowships.

Grants-in-Aid of Research: January 15, 1952, for awards to be made about April 1, by the Committee on Grants-in-Aid.

Faculty Research Fellowships: Preliminary nominations for appointments to become effective during the academic year 1952–53 must be filed not later than January 15, 1952 and preferably well in advance of that date.

Faculty Research Grants to Liberal Arts Colleges: Plans for this program for the academic year 1952–53 will be announced early in January.

Inquiries concerning each program should be addressed to the Washington office of the Council, 726 Jackson Place, N.W., Washington 6, D. C.

SOCIAL SCIENCE RESEARCH COUNCIL

230 PARK AVENUE, NEW YORK 17, N.Y.

Incorporated in the State of Illinois, December 27, 1924, for the purpose of advancing research in the social sciences

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